

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ercan Adem

Title: METHOD OF ULTRA-LOW ENERGY ION IMPLANTATION TO FORM ALLOY LAYERS IN COPPER

Appl. No.: Unknown

Filing Date: Unknown

Examiner: Unknown

Art Unit: Unknown

CERTIFICATE OF EXPRESS MAILING	
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PRELIMINARY AMENDMENT

Commissioner for Patents
Box NON-FEE AMENDMENT
Washington, D.C. 20231

Sir:

Prior to examination of the above-referenced application, please amend the application as follows:

In the Specification:

Please amend the specification as follows:

On page 11, delete paragraph number 0043, and replace this paragraph with the following in accordance with 37 C.F.R. § 1.121. A marked up version showing changes is attached.

[0043] As with seed layers described with reference to FIGURES 1-3, seed layer 440 includes elements implanted in a ULEII process. Examples of elements that can be implanted include Zn, Sn, Cr, Ca, Ag, or In. Such implanted elements can be reactive with barrier layer 430, thereby reducing resistance and improving electromigration effects. A ULEII process has the advantage of avoiding the manufacture of copper alloy targets, such as those necessary in a plasma vapor deposition (PVD) tool process.